



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 4 1989

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

TO ALL NRC LICENSEES:

SUBJECT: GUIDANCE ON THE DEFINITION AND IDENTIFICATION OF
COMMERCIAL MIXED LOW-LEVEL RADIOACTIVE AND HAZARDOUS
WASTE AND ANSWERS TO ANTICIPATED QUESTIONS

The U.S. Environmental Protection Agency (EPA) has jurisdiction under the Resource Conservation and Recovery Act (RCRA) over the management of wastes with the exception of radioactive wastes subject to the Atomic Energy Act (AEA). Accordingly, commercial use and disposal of source, byproduct and special nuclear material wastes are regulated by the U.S. Nuclear Regulatory Commission (NRC) to meet EPA environmental standards. Under the AEA Low-Level Radioactive Wastes (LLW) contain source, byproduct, or special nuclear material, but they may also contain chemical constituents which are hazardous under EPA regulations in 40 CFR Part 261. Such wastes are commonly referred to as Mixed Low-Level Radioactive and Hazardous Waste (Mixed LLW).

NRC regulations exist to control the byproduct, source, and special nuclear material components of commercial Mixed LLW; EPA has the authority and continues to develop regulations to control the non-radioactive component of the Mixed LLW. Thus, the individual constituents of commercial Mixed LLW are subject to either NRC or EPA regulations. However, when the components are combined to become Mixed LLW, neither statute has exclusive jurisdiction. This has resulted in a situation of dual regulation where both NRC and EPA may regulate the same waste.

Enclosed is the revised guidance document entitled, "Guidance on the Definition and Identification of Commercial Mixed Low-Level Radioactive and Hazardous Waste." This document was developed jointly by the NRC and EPA to aid commercial LLW generators in assessing whether they are currently generating Mixed LLW. It is based on NRC and EPA regulations in effect on December 31, 1988.

Notice of availability of
for comments were published in
1987, and comments were subse
public comment in the questio
document to provide clarifica
were raised.

GUIDANCE ON THE DEFINITION AND IDENTIFICATION
OF COMMERCIAL MIXED LOW-LEVEL RADIOACTIVE AND HAZARDOUS WASTE

Definition

Mixed Low-Level Radioactive and Hazardous Waste (Mixed LLW) is defined as waste that satisfies the definition of low-level radioactive waste (LLW) in the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA) and contains hazardous waste that either (1) is listed as a hazardous waste in Subpart D of 40 CFR Part 261 or (2) cause the LLW to exhibit any of the hazardous waste characteristics identified in Subpart C of 40 CFR Part 261.

Identification

The policy provided in this guidance was developed jointly by the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Environmental Protection Agency (EPA). LLW that contains hazardous wastes defined under the Resource Conservation and Recovery Act (RCRA) is Mixed LLW. Under current Federal law, such waste is subject to regulation by NRC under the Atomic Energy Act (AEA), as amended, and by EPA under RCRA, as amended. In the absence of legislation to the contrary, management and disposal of this waste must be conducted in compliance with NRC and EPA or equivalent state regulations.

This guidance presents a methodology (Figure 1) that may be used by generators of commercial LLW to identify Mixed LLW. Implementation of the methodology should identify Mixed LLW and aid generators in assessing whether they are currently generating Mixed LLW. Generators are cautioned, however, that application of the methodology does not affect the need to comply with applicable NRC and EPA regulations. Because EPA's regulations for hazardous waste are currently changing, generators should use applicable regulations that are in effect at the time of implementation of the methodology. This guidance has been prepared based on NRC and EPA regulations in effect on December 31, 1988.

Application of this methodology to identify Mixed LLW will reveal the complexities of the definition of Mixed LLW. If generators have specific questions about whether LLW is Mixed LLW, they should promptly contact the agencies by writing to the persons listed below.

For questions about whether the waste is low-level radioactive waste, contact:

Mr. Dan E. Martin
Division of Low-Level Waste
Management and Decommissioning
U.S. Nuclear Regulatory Commission
Mail Stop WF5E4
Washington, D.C. 20555

For questions about whether the waste is hazardous waste, contact:

Ms. Betty Shackleford
Mixed Waste Coordinator
Permits and State
Programs Division
Mail Code OS-342
U.S. Environmental
Protection Agency
401 M St., S.W.
Washington, D.C. 20460

Methodology

Step 1. Identify LLW

Step 1 in the methodology requires that the generator determine whether the waste is LLW as defined in the LLRWPA. This Act defines LLW as radioactive material that (A) is not high-level radioactive waste, spent nuclear fuel, or byproduct material as defined in section 11e(2) of the AEA (i.e., uranium or thorium mill tailings) and (B) the NRC classifies as LLW consistent with existing law and in accordance with (A). If the generator determines that the waste is LLW, the generator should proceed to step 2. If the determination is negative, then the waste cannot be Mixed LLW because it is not LLW. However, the waste may be another radioactive or hazardous waste regulated under AEA, RCRA, or both statutes.

Step 2. Identify Listed Hazardous Waste

In step 2, the generator determines whether the LLW contains any hazardous wastes listed in Subpart D of 40 CFR Part 261. Subpart D of Part 261 is reproduced in Appendix I of this guidance. LLW is Mixed LLW if it contains any hazardous wastes specifically listed in Subpart D of 40 CFR Part 261. Listed hazardous wastes include hazardous waste streams from specific and non-specific sources listed in 40 CFR Parts 261.31 and 261.32 and discarded commercial chemical products listed in 40 CFR Part 261.33. The generator is responsible for determining whether LLW contains listed hazardous wastes. The determination should be based on knowledge of the process that generates the waste. For example, if a process produces LLW that contains spent solvents that are specifically listed in the tables of Subpart D of Part 261, the generator should suspect that the waste is Mixed LLW.

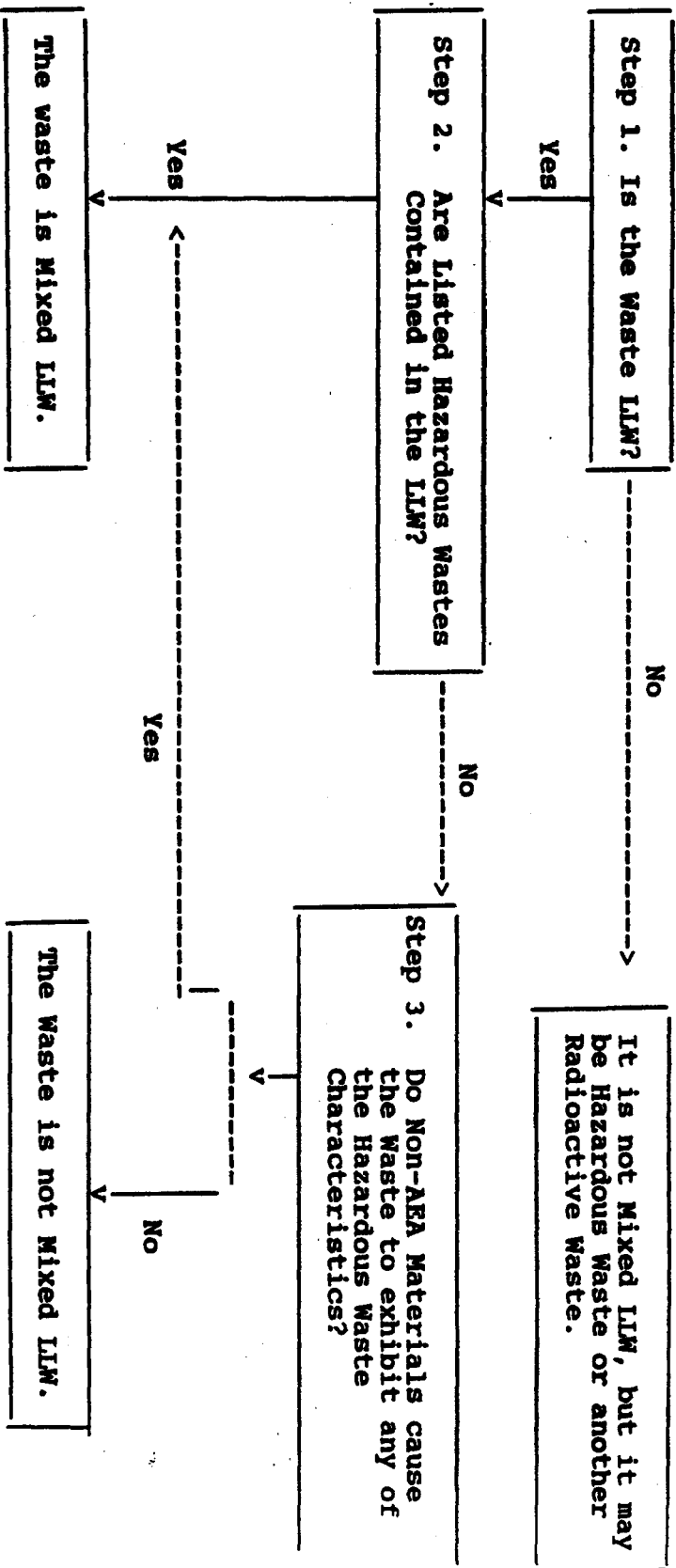


Figure 1. Identification of Mixed LHM.

Step 3. Identify Hazardous Characteristics

If the LLW does not contain a listed hazardous waste, Step 3 of the methodology requires the generator to determine whether the LLW contains hazardous wastes that cause the LLW to exhibit any of the hazardous waste characteristics identified in Subpart C of 40 CFR Part 261. This determination can be based on either (1) an assessment of whether the LLW exhibits one or more of the hazardous waste characteristics because it contains non-AEA materials (i.e., materials other than source, special nuclear, and byproduct materials) based on the generator's knowledge of the materials or processes used in generating the LLW or (2) testing of the LLW in accordance with the methods identified in Subpart C of Part 261. Except for certain ores containing source material, which are defined as source material in 10 CFR 40.4(h), and uranium and thorium mill tailings or wastes, NRC and EPA interpret the definitions of source, special nuclear, and byproduct materials to include only the radioactive elements themselves. Generators should identify non-AEA materials contained in the LLW by examining the process that generates the waste. For example, if the process mixes byproduct material (an AEA material) with a volatile organic solvent (a non-AEA material), the generator would determine either through his knowledge or testing of representative samples of the LLW that contain the solvent waste whether the waste exhibits any of the hazardous waste characteristics because it contains the solvent.

If the wastes are tested, the generator should collect and test representative samples of the LLW to determine if the waste exhibits any of the characteristics identified in Subpart C because it contains the non-AEA materials. These characteristics include ignitability (Section 261.21), corrosivity (Section 261.22), reactivity (Section 261.23), and Extraction Procedure (EP) toxicity (Section 261.24). Waste testing should be conducted in a manner that is consistent with the worker protection requirements in 10 CFR Part 20. The purpose of the characteristics tests is to identify hazardous wastes that are not specifically listed in Subpart D of 40 CFR Part 261. Test methods to collect representative samples of wastes are described in Appendix I of 40 CFR Part 261. The samples should then be tested using the referenced testing protocols (e.g., ASTM Standard D-93-79 or D-93-80 for the Pensky-Martens Closed Cup Ignitability Test). EPA's testing requirements are reproduced in Appendix II of this guidance. It should be noted that on June 13, 1986, EPA proposed a modification to the EP Toxicity testing requirements to include organic constituents.

If LLW contains a listed hazardous waste or non-AEA materials that cause the LLW to exhibit any of the hazardous waste characteristics, the waste is Mixed LLW and must, therefore, be managed and disposed of in compliance with EPA's Subtitle C hazardous waste regulations in 40 CFR Parts 124, and 260 through 270, and NRC's regulations in 10 CFR Parts 20, 30, 40, 61, and 70.

Management and disposal of Mixed LLW must be conducted in compliance with state requirements in states with EPA-authorized regulatory programs for the hazardous components of such waste and NRC agreement state radiation control programs for LLW.

Questions and Answers

As a supplement to the Guidance on the Definition and Identification of Commercial Mixed Low-Level Radioactive and Hazardous Waste (Mixed LLW), answers to anticipated questions are included to clarify obscure points and to respond to public comments.

1. Are my low-level radioactive wastes exempt from RCRA because they are source, special nuclear, or byproduct materials as defined under the AEA?

Except for certain ores containing source material, which are defined as source material in 10 CFR 40.4(h), and uranium and thorium mill tailings or wastes, NRC and EPA consider that only the radionuclides themselves are exempt from RCRA. Section 1004(27) of RCRA excludes source, special nuclear, and byproduct material from the definition of "solid waste." RCRA defines solid waste as:

"any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, or from community activities, but does not include solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923)." [emphasis added]

Since "hazardous waste" is a subset of "solid waste," RCRA also excludes source, special nuclear, and byproduct materials from the definition of hazardous waste and, therefore, from regulation under EPA's RCRA Subtitle C program. Section 11 of the Atomic Energy Act, as amended, defines these radioactive materials as follows:

Source material means (1) uranium, thorium, or any other material which is determined by the Atomic Energy Commission (AEC) pursuant to the provisions of section 61 of the AEA to be source material, or (2) ores containing one or more of the foregoing materials, in such concentration as the AEC may by regulation determine from time to time.

Special nuclear material means (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the AEC, pursuant to the provisions of Section 51 of the AEA, determines to be special nuclear material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.

Byproduct material means (1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to radiation incident to the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

Source, special nuclear, and byproduct materials, however, may be mixed with other radioactive or non-radioactive materials that are not source, special nuclear, or byproduct materials. For example, tritium may be contained in toluene, a nonhalogenated aromatic solvent. Consistent with the definition of byproduct material, the tritium may be considered a byproduct material, while the toluene that contains the tritium would not be byproduct material. Mixtures of toluene and tritium could satisfy the definition of Mixed LLW because they contain listed hazardous waste (spent toluene) and tritium that may qualify as LLW if it has been produced by activities regulated by NRC under the AEA.

2. What are some examples of Mixed LLW?

A preliminary survey performed for the NRC identified two potential types of Mixed LLW:

- o LLW containing organic liquids, such as scintillation liquids and vials; organic lab liquids; sludges; and cleaning, degreasing, and miscellaneous solvents.
- o LLW containing heavy metals, such as discarded lead shielding, discarded lined containers, and lead oxide dross containing uranium oxide; light water reactor (LWR) process wastes containing chromate and LWR decontamination resins containing chromium; and mercury amalgam in trash.

The preliminary survey concluded that potential Mixed LLW comprises a small percentage of all LLW. For example, LLW containing organic liquids accounted for approximately 2.3% by volume of LLW reported in the preliminary survey (Bowerman, et al., 1985).

An earlier survey identified a more diverse universe of potential Mixed LLW including wastes that contained aldehydes, aliphatic halogenated hydrocarbons, alkanes, alkenes, amino acids, aromatic hydrocarbons, chelating agents, esters, ethers, ketones, nitrosamines, nucleotides, pesticides, phenolic compounds, purines, resins, steroids, and vitamins (General Research Corporation, 1980). NRC also anticipates that additional LLW may be identified as Mixed LLW in the future, as generators implement the definition of Mixed LLW and as EPA revises the definition of hazardous waste.

3. Could some "below regulatory concern" wastes be considered Mixed LLW?

A determination that radioactive wastes are below regulatory concern (BRC) for radioactivity may affect how the wastes are managed or discarded, but it does not affect the legal status of the wastes. Specifically, their status with respect to the definition of Mixed LLW does not change. BRC waste is still LLW because it satisfies the definition of LLW in the LLRWPA and is within the NRC's jurisdictional authority under the AEA.

When radioactive waste contains sufficiently low concentrations or quantities of radionuclides, NRC may find that they do not need to be managed or disposed of as radioactive wastes. For NRC to make such a finding, management and disposal of the waste must not pose an undue radiological risk to the public and the environment. However, NRC's determination that the radioactive content of the wastes is below NRC regulatory concern does not relieve licensees from compliance with applicable rules of other agencies governing non-radiological hazards (e.g., regulations of EPA or the Department of Transportation).

Therefore, some BRC wastes may still be considered Mixed LLW if they contain hazardous wastes that have been listed in Subpart D of 40 CFR Part 261 or that cause the LLW to exhibit any of the hazardous characteristics described in Subpart C of 40 CFR Part 261. BRC Mixed LLW may be managed without regard to its radioactivity (but it must still be managed as a hazardous waste in compliance with EPA's regulations for hazardous waste generation, storage, transportation, treatment, and disposal (cf. 40 CFR Parts 262 through 266)).

4. If I use chemicals in my process that are identified by EPA as hazardous constituents, should I assume that my LLW is Mixed LLW?

No. Low-level radioactive waste that contains hazardous constituents may not necessarily be Mixed LLW. As defined above, Mixed LLW is LLW that contains a known hazardous waste (i.e., a listed hazardous waste) or that exhibits one or more of the hazardous characteristics because it contains non-AEA materials. For wastes that are not listed in Subpart D of 40 CFR Part 261, testing is not necessarily required to "determine" whether the LLW exhibits any of the hazardous characteristics. A generator may be able to determine whether the LLW is Mixed LLW based on knowledge of the waste characteristics or the process that generates the LLW.

Furthermore, if the generator normally segregates LLW from hazardous and other types of wastes, there is no need to assume that hazardous wastes may have been inadvertently mixed with LLW or to inspect each container or receptacle to ensure that inadvertent mixing has not occurred. Although the generator is subject to RCRA inspections and must follow the manifest, pre-transport, and other requirements of

40 CFR Part 262, the generator is not required to demonstrate that every LLW container does not contain hazardous waste.

5. How can I obtain representative samples of heterogeneous trash included in LLW to perform the hazardous characteristics tests?

Before discussing the collection of representative samples of waste, generators are reminded that they are not required to test LLW to determine if the waste contains hazardous wastes. Generators and handlers of mixed waste and hazardous waste can declare their wastes hazardous or nonhazardous based on knowledge of the process/production of the waste, in lieu of testing for a characteristic.

Representative samples of waste should be collected for testing in accordance with EPA's regulations in 40 CFR 261.20(c), which state that waste samples collected using applicable methods specified in Appendix I of Part 261 will be considered as representative samples for hazardous characteristics testing. This appendix has been included in its entirety in Appendix II of this guidance. The sampling techniques described in Appendix I of Part 261 apply to extremely viscous liquids, fly ash-like material, containerized liquid wastes, and liquid wastes in pits, ponds, lagoons, and similar reservoirs. In the absence of guidance about sampling heterogeneous wastes, generators should use appropriate portions of the sampling methods described in Appendix I of Part 261 and EPA's manual entitled "Test Methods for Evaluating Solid Waste, Third Edition (i.e., SW-846) in combination with other methods to collect, to the maximum extent practicable, representative samples of the waste to be tested.

6. Are lead containers whose primary use is for shielding in disposal operations, hazardous waste under RCRA?

No. While lead containers and lead container liners may exhibit the hazardous characteristic for lead, those containers whose primary use is for shielding in low-level waste disposal operations are not considered wastes and thus, are not subject to the hazardous waste rules. These same containers and liners if disposed of or discarded would be considered wastes and if they exhibit the hazardous characteristic, would be subject to the hazardous waste rules.

It should be noted that EPA recognizes that all lead containers and liners may be equally hazardous to human health and the environment when placed in the ground independent of its legal classification as a waste or container. Therefore, EPA recommends that all lead containers and lead liners be managed in an environmentally safe manner (e.g., managed in a permitted hazardous waste facility or treated such that it no longer exhibits its characteristic).

Encapsulation may be a viable mechanism to mitigate lead migration from these containers and liners. The EPA has not evaluated specific containers or encapsulation methodologies using the EP Toxicity test.

7. If a waste contains any of the constituents listed on Appendix VIII of Part 261, is it a hazardous under RCRA?

No. Under RCRA, a waste is hazardous if it is a "listed" waste or it exhibits a hazardous characteristic. Wastes are listed by EPA if they contain significant amounts of toxic constituents identified in Appendix VIII, and the Agency has determined that these toxic constituents are persistent and mobile to some degree such that they pose a potential and substantial threat to human health and the environment. (Factors outlined in 40 CFR 261.11(a)(3)(i)-(xi), which include nature of the toxicity present and potential degradation products, may be considered when determining whether or not a waste should be listed). However, until the Agency lists the wastes in Subpart D of Part 261, they would not be considered hazardous by EPA (even if the waste contains one or more of the hazardous constituents listed on Appendix VIII) unless the waste would exhibit one or more of the hazardous waste characteristics.

References

Bowerman, B. S., Kempf, C. R., MacKenzie, D. R., Siskind, B. and P. L. Piciulo, 1985, "An Analysis of Low-Level Wastes: Review of Hazardous Waste Regulations and Identification of Radioactive Mixed Wastes," NUREG/CR-4406, U.S. Nuclear Regulatory Commission.

General Research Corporation, 1980, "Study of Chemical Toxicity of Low-Level Wastes," NUREG/CR-1793, U.S. Nuclear Regulatory Commission.

Appendix I

Subpart D—Lists of Hazardous Wastes

§ 261.30 General.

(a) A solid waste is a hazardous waste if it is listed in this subpart, unless it has been excluded from this list under §§ 260.20 and 260.22.

(b) The Administrator will indicate his basis for listing the classes or types of wastes listed in this Subpart by employing one or more of the following Hazard Codes:

Ignitable Waste	_____	(1)
Corrosive Waste	_____	(2)
Reactive Waste	_____	(3)
EP Toxic Waste	_____	(4)
Acute Hazardous Waste	_____	(5)
Toxic Waste	_____	(6)

Appendix VII identifies the constituent which caused the Administrator to list the waste as an EP Toxic Waste (E) or Toxic Waste (T) in §§ 261.31 and 261.32.

(c) Each hazardous waste listed in this subpart is assigned an EPA Hazardous Waste Number which precedes the name of the waste. This number must be used in complying with the notification requirements of Section 3010 of the Act and certain record-keeping and reporting requirements under Parts 262 through 265 and Part 270 of this chapter.

(d) The following hazardous wastes listed in § 261.31 or § 261.32 are subject to the exclusion limits for acutely hazardous wastes established in § 261.5: EPA Hazardous Wastes Nos. F020, F021, F022, F023, F024, and F027.

[45 FR 22119, May 19, 1980, as amended at 48 FR 14284, Apr. 1, 1983; 50 FR 2000, Jan. 14, 1985]

§ 261.31 Hazardous wastes from non-specific sources.

The following solid wastes are listed hazardous wastes from non-specific sources unless they are excluded under §§ 260.20 and 260.22 and listed in Appendix IX.

Industry and EPA Hazardous Waste No.	Hazardous Waste	Exclusion Code
Generic FX*	The following spent halogenated solvents used in degreasing: trichloroethylene, perchloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chlorobenzene. All spent solvent mixtures/batches used in degreasing containing before use a total of ten percent or more (by volume) of one or more of the above halogenated solvents or these solvents listed in F001, F004, and F005, and all bottoms from the recovery of these spent solvents and spent solvent mixtures.	(7)
EL	The following spent halogenated solvents: trichloroethylene, perchloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,2,2,2-pentachloroethane, and 1,1,2,2,2,2-hexachloroethane. All spent solvent mixtures/batches containing before use a total of ten percent or more (by volume) of one or more of the above halogenated solvents or these listed in F001, F004, or F005, and all bottoms from the recovery of these spent solvents and spent solvent mixtures.	(7)
EM	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzoate, ethyl ether, methyl cellosolve, n-butyl alcohol, cyclohexanone, and methanol. All spent solvent mixtures/batches containing before use only the above spent non-halogenated solvents, and all spent solvent mixtures/batches containing before use one or more of the above non-halogenated solvents, and a total of ten percent or more (by volume) of one or more of these solvents listed in F001, F002, F004, and F005, and all bottoms from the recovery of these spent solvents and spent solvent mixtures.	(7)
EN	The following spent non-halogenated solvents: creosote and creosote acid, and kerosene. All spent solvent mixtures/batches containing before use a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or these solvents listed in F001, F002, and F005, and all bottoms from the recovery of these spent solvents and spent solvent mixtures.	(7)
EO	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, acetone, pyrene, benzene, 2-chlorobenzene, and 2-nitrobenzene. All spent solvent mixtures/batches containing before use a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or these solvents listed in F001, F002, or F004, and all bottoms from the recovery of these spent solvents and spent solvent mixtures.	(7)
EP	Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfur acid etching of aluminum; (2) tin plating on carbon steel; (3) zinc plating (sacrificial anode) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc, and aluminum plating on carbon steel; and (6) chromium etching and rinsing of aluminum.	(7)
EP-10	Wastewater treatment sludges from the chemical conversion etching of aluminum.	(7)
EP-11	Spent cyanide bearing bath solutions from electroplating operations.	(A) (7)
EP-12	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(A) (7)
EP-13	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(A) (7)
EP-14	Cleaning bath residues from an bath from metal heat treating operations where cyanides are used in the process.	(A) (7)
EP-15	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(A) (7)
EP-16	Wastes, including but not limited to, sludges, residues, heavy oils, tars, and tars, resulting from the production of chlorinated aromatic hydrocarbons, having carbon content from one to two percent, which are used in the production of (This listing does not include light oils, spent tars and tar oils, spent solvents, wastewater treatment sludges, spent cyanides and wastes listed in § 261.32.)	(7)
EP-17	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-18	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-19	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-20	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-21	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-22	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-23	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-24	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-25	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-26	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-27	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)
EP-28	Wastes (except wastewater) and spent carbon from hydrogen cyanide purification from the production or manufacturing use as a reactant, chemical intermediate or component in a formulating process of 2- or 4-methoxyphenol or of methoxyphenols used to produce their pesticide derivatives. (This listing does not include wastes from the production of methoxyphenols from highly purified 2,4,5-trimethoxyphenol.)	(A) (7)

* (7) should be used to identify materials containing cyanide and toxic substances.

[46 FR 4617, Jan. 16, 1981, as amended at 46 FR 27477, May 20, 1981; 46 FR 5312, Feb. 10, 1981; 46 FR 37070, Sept. 21, 1981; 50 FR 685, Jan. 4, 1985; 50 FR 2000, Jan. 14, 1985; 50 FR 5319, Dec. 31, 1985; 51 FR 2702, Jan. 21, 1986; 51 FR 4541, Feb. 25, 1986]

§ 261.32 Hazardous wastes from specific sources.

The following solid wastes are listed hazardous wastes from specific sources unless they are excluded under §§ 260.20 and 260.22 and listed in Appendix IX.

Industry and EPA hazardous waste No.	Hazardous waste	Hazard code
Wood preservatives: K001	Bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	3
Inorganic pigments:		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	3
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	3
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	3
K005	Wastewater treatment sludge from the production of chrome green pigments.	3
K006	Wastewater treatment sludge from the production of chrome azo green pigments (anthraquinone and hydrazine).	3
K007	Wastewater treatment sludge from the production of iron blue pigments.	3
K008	Oven residue from the production of chrome azo green pigments.	3
Organic chemicals:		
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	3
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	3
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	3
K012	Bottom stream from the acetonitrile column in the production of acrylonitrile.	3
K013	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	3
K014	Still bottoms from the distillation of benzyl chloride.	3
K015	Heavy ends or distillation residues from the production of carbon tetrachloride.	3
K016	Heavy ends (still bottoms) from the purification column in the production of carbon tetrachloride.	3
K017	Heavy ends from the fractionation column in vinyl chloride production.	3
K018	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	3
K019	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	3
K020	Aqueous spent antimony catalyst waste from fluoromethane production.	3
K021	Distillation bottom cuts from the production of phenol/acetylene from cumene.	3
K022	Distillation light ends from the production of phthalic anhydride from naphthalene.	3
K023	Distillation bottoms from the production of phthalic anhydride from naphthalene.	3
K024	Distillation light ends from the production of phthalic anhydride from ortho-xylene.	3
K025	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.	3
K026	Distillation bottoms from the production of nitrobenzene by the reaction of benzene.	3
K027	Stripping still tails from the production of methyl ethyl pyridine.	3
K028	Cartridge and distillation residues from toluene diisocyanate production.	3
K029	Spent catalyst from the hydrotreatment reactor in the production of 1,1,1-trichloroethane.	3
K030	Waste from the product stream stripper in the production of 1,1,1-trichloroethane.	3
K031	Distillation bottoms from the production of 1,1,1-trichloroethane.	3
K032	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	3
K033	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	3
K034	Distillation bottoms from aniline production.	3
K035	Process residues from aniline extraction from the production of aniline.	3
K036	Condensed wastewater effluent generated from nitrobenzene/aniline production.	3
K037	Distillation or fractionation column bottoms from the production of chlorobenzene.	3
K038	Separated aqueous stream from the reactor product washing step in the production of chlorobenzene.	3
Inorganic chemicals:		
K039	Brine purification waste from the mercury cell process in chlorine production, where separately treated brine is not used.	3
K040	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	3
K041	Wastewater treatment sludge from the mercury cell process in chlorine production.	3
Polymers:		
K042	By-product cake generated in the production of MMA and acrylate acid.	3
K043	Wastewater treatment sludge from the production of styrene.	3
K044	Wastewater and scrub water from the distillation of cyclopentadiene in the production of styrene.	3
K045	Filter cake from the filtration of hexamethylenetetramine in the production of styrene.	3
K046	Vacuum stripper discharge from the styrene distillation in the production of styrene.	3
K047	Wastewater treatment sludge generated in the production of creosote.	3
K048	Still bottoms from toluene restoration distillation in the production of diisopropyl.	3
K049	Wastewater treatment sludge from the production of diisopropyl.	3
K050	Wastewater from the washing and drying of phosgene production.	3
K051	Filter cake from the filtration of diisopropylamine and in the production of phosgene.	3
K052	Wastewater treatment sludge from the production of phosgene.	3
K053	Wastewater treatment sludge from the production of triphosgene.	3
K054	Untreated process wastewater from the production of triphosgene.	3

Industry and EPA Hazardous waste No.	Hazardous waste	Hazard code
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.	(3)
K043	2,6-Dichlorophenol waste from the production of 2,4-D.	(3)
K044	Unreacted wastewater from the production of 2,4-D.	(3)
Explosives:		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives.	(3)
K045	Spent carbon from the treatment of wastewater containing explosives.	(3)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based coloring compounds.	(3)
K047	Pink/red water from TNT operations.	(3)
Petroleum refining:		
K048	Quenched or flotation (DAF) sludge from the petroleum refining industry.	(3)
K049	Slip oil emulsion solids from the petroleum refining industry.	(3)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	(3)
K051	API separator sludge from the petroleum refining industry.	(3)
K052	Tank bottoms (sediment) from the petroleum refining industry.	(3)
Iron and steel:		
K051	Emission control dust/sludge from the primary production of steel in electric furnaces.	(3)
K052	Spent pickle liquor generated by steel finishing operations of plants that produce iron or steel.	(K,T)
Secondary metal:		
K053	Emission control dust/sludge from secondary metal smelting.	(3)
K100	Waste leaching solution from and leaching of emission control dust/sludge from secondary metal smelting.	(3)
Veterinary pharmaceuticals:		
K054	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from aromatic or organo-aromatic compounds.	(3)
K101	Distillation by residues from the distillation of aromatic-based compounds in the production of veterinary pharmaceuticals from aromatic or organo-aromatic compounds.	(3)
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from aromatic or organo-aromatic compounds.	(3)
Ink formulation: K055	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning lines and equipment used in the formulation of ink from pigments, dyes, resins, and stabilizers containing chromium and lead.	(3)
Coating:		
K056	Ammers off line sludge from coating operations.	(3)
K057	Decanter tank top sludge from coating operations.	(3)

(46 FR 4812, Jan. 18, 1981, as amended at 46 FR 27476-27477, May 30, 1981; 49 FR 37070, Sept. 21, 1984; 50 FR 42942, Oct. 22, 1985; 51 FR 5330, Feb. 13, 1986; 51 FR 15332, May 30, 1986)

Effective Date Note: At 51 FR 5330, Feb. 13, 1986, in § 261.32, waste streams "K117, K118, and K134" in the subgroup "Organic Chemicals" were added, effective August 13, 1986.

§ 261.32 Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof.

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded, when they are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, or when, in lieu of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel.

(a) Any commercial chemical product, or manufacturing chemical inter-

mediate having the generic name listed in paragraph (e) or (f) of this section.

(b) Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in paragraph (e) or (f) of this section.

(c) Any container or inner liner removed from a container that has been used to hold any commercial chemical product or manufacturing chemical intermediate having the generic names listed in paragraph (e) of this section, or any container or inner liner removed from a container that has been

used to hold any off-specification chemical product and manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in paragraph (e) of this section, unless the container is empty as defined in § 261.7(b)(3) of this chapter.

[Comment: Unless the residue is being beneficially used or reused, or legitimately recycled or reclaimed; or being accumulated, stored, transported or treated prior to such use, re-use, recycling or reclamation, EPA considers the residue to be intended for discard, and thus a hazardous waste. An example of a legitimate re-use of the residue would be where the residue remains in the container and the container is used to hold the same commercial chemical product or manufacturing chemical intermediate it previously held. An example of the discard of the residue would be where the drum is sent to a drum reconditioner who reconditions the drum but discards the residue.]

(d) Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill into or on any land or water of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) or (f) of this section, or any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any off-specification chemical product and manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in paragraph (e) or (f) of this section.

[Comment: The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in . . ." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in paragraph (e) or (f). Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in paragraph (e) or (f), such waste will be listed in either § 261.31 or § 261.33 or will be identified as a hazardous waste by the characteristics set forth in Subpart C of this part.]

(e) The commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates referred to in paragraphs (a) through (d) of this section, are identified as acute hazardous wastes (H) and are subject to be the small quantity exclusion defined in § 261.6(e).

[Comment: For the convenience of the regulated community the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), and R (Reactivity). Absence of a letter indicates that the compound only is listed for acute toxicity.]

These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous waste No.	Substance
P001	Acetic anhydride, chloro-
P002	Acetic anhydride, hexamethylenetetra-
P003	Acetic anhydride, 2-chloro-
P004	Acetic acid, 2-chloro-, anhydrous salt
P005	Acetic anhydride, 2-chloro-, N-(1-methyl-2-hydroxyethyl)ammonium salt
P006	2-(2-chloro-2-methylpropyl)-4-hydroxy-2-methyl-1,3-dioxane, when present at concentrations greater than 0.5%
P007	1-Amino-2-naphthol
P008	Acetone
P009	Alkylates
P010	Alkylates
P011	Allyl alcohol
P012	Aluminum phosphide
P013	5-(Aminomethyl)-2-thiophenyl
P014	4-Aminopyridine
P015	Ammonium persulfate (P)
P016	Ammonium persulfate
P017	Ammonium sulfate
P018	Ammonium sulfate
P019	Ammonium sulfate
P020	Ammonium sulfate
P021	Ammonium sulfate
P022	Ammonium sulfate
P023	Ammonium sulfate
P024	Ammonium sulfate
P025	Ammonium sulfate
P026	Ammonium sulfate
P027	Ammonium sulfate
P028	Ammonium sulfate
P029	Ammonium sulfate
P030	Ammonium sulfate
P031	Ammonium sulfate
P032	Ammonium sulfate
P033	Ammonium sulfate
P034	Ammonium sulfate
P035	Ammonium sulfate
P036	Ammonium sulfate
P037	Ammonium sulfate
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P080	Ammonium sulfate
P081	Ammonium sulfate
P082	Ammonium sulfate
P083	Ammonium sulfate
P084	Ammonium sulfate
P085	Ammonium sulfate
P086	Ammonium sulfate
P087	Ammonium sulfate
P088	Ammonium sulfate
P089	Ammonium sulfate
P090	Ammonium sulfate
P091	Ammonium sulfate
P092	Ammonium sulfate
P093	Ammonium sulfate
P094	Ammonium sulfate
P095	Ammonium sulfate
P096	Ammonium sulfate
P097	Ammonium sulfate
P098	Ammonium sulfate
P099	Ammonium sulfate
P100	Ammonium sulfate

Hazardous waste No.	Substance	Hazardous waste No.	Substance
P003	Chlorine cyanide	P112	Methane, tert-butyl (R)
P023	Chloroacetaldehyde	P118	tert-butyl, isobutyl
P024	p-Chloroaniline	P088	4,7-Methano-1H-coumarin, 1,4,5,6,7,8,9-hexahydro-3a,4,7,7a-trimethyl-
P025	1-(4-Chlorophenyl)ethane	P086	Methanol
P027	3-Chloropropene	P087	3-Methoxybenzene
P029	Copper cyanide	P088	Methyl hydrazine
P030	Cyanides (soluble cyanide salts), not elsewhere specified	P084	Methyl isocyanate
P031	Cyanogen	P089	3-Methylpentanone
P033	Cyanogen chloride	P071	Methyl parathion
P035	Dichlorophenylacetylene	P072	alpha-Naphthylthiourea
P037	Dioxane	P073	Nitral carbonyl
P038	Dioxybenzene	P074	Nitral cyanide
P039	O,O-Dimethyl S-[2-(methylthio)ethyl] phosphorothioate	P074	Nitral (IV) cyanide
P041	Diethyl-p-nitrophenyl phosphite	P072	Nitral tert-butyl
P040	O,O-Dimethyl O-pyrimidyl phosphorothioate	P075	Nitrate and salts
P043	Diisopropyl azodicarboxylate	P076	Nitro azide
P044	Dinitroethane	P077	p-Nitroaniline
P046	2,3-Dimethyl-1-(methylthio)-2-butanone, O-(methylthiomethyl) azine	P078	Nitrogen dioxide
P071	O,O-Dimethyl O-p-nitrophenyl phosphorothioate	P076	Nitrogen(II) oxide
P082	Dimethylhydrazine	P078	Nitrogen(IV) oxide
P045	azide, alpha-Dimethylphenylthioethane	P081	Nitrophenol (R)
P047	4,5-Dinitro-o-cresol and salts	P082	N-Nitrosodimethylamine
P034	4,5-Dinitro-o-cyanothiophenol	P084	N-Nitrosodimethylamine
P048	2,4-Dinitrophenol	P080	5-Nitrobenzo-2,3-dioxazole, 1,4,5,6,7,7-hexachloro, cyclic azide
P050	Dioxane	P088	O-methylphosphorothioic acid
P055	Dichloromethane, octamethyl-	P087	Carbon azide
P056	Dioxane	P087	Carbon tetrachloride
P058	2,4-Dichlorobenzene	P088	7-Oxabicyclo[2.2.1]heptane-2,5-dicarboxylic acid
P059	Dichlorophosphine acid, isopropyl ester	P089	Phenol
P060	Dioxane	P084	Phenol, 3-cyano-4,5-dinitro-
P062	Dioxane	P048	Phenol, 2,4-dinitro-
P063	Dioxane	P067	Phenol, 2,4-dinitro-2-methyl-
P064	Dioxane	P060	Phenol, 2,4-dinitro-2-(1-methoxyethyl)-
P065	Dioxane	P065	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P066	Dioxane	P062	Phenyl dichloroarsine
P067	Dioxane	P062	Phenylhydrazine azide
P068	Dioxane	P062	N-Phenylthiourea
P069	Dioxane	P064	Phenol
P070	Dioxane	P065	Phenol
P071	Dioxane	P065	Phenol
P072	Dioxane	P065	Phenol
P073	Dioxane	P065	Phenol
P074	Dioxane	P065	Phenol
P075	Dioxane	P065	Phenol
P076	Dioxane	P065	Phenol
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P297	Dioxane	P065	Phenol
P298	Dioxane	P065	Phenol
P299	Dioxane	P065	Phenol
P300	Dioxane	P065	Phenol
P301	Dioxane	P065	Phenol
P302	Dioxane	P065	Phenol
P303	Dioxane	P065	Phenol
P304	Dioxane	P065	Phenol
P305	Dioxane	P065	Phenol
P306	Dioxane	P065	Phenol
P307	Dioxane	P065	Phenol
P308	Dioxane	P065	Phenol
P309	Dioxane	P065	Phenol
P310	Dioxane	P065	Phenol
P311	Dioxane	P065	Phenol
P312	Dioxane	P065	Phenol
P313	Dioxane	P065	Phenol
P314	Dioxane	P065	Phenol
P315	Dioxane	P065	Phenol
P316	Dioxane	P065	Phenol
P317	Dioxane	P065	Phenol
P318	Dioxane	P065	Phenol
P319	Dioxane	P065	Phenol
P320	Dioxane	P065	Phenol
P321	Dioxane	P065	Phenol
P322	Dioxane	P065	Phenol
P323	Dioxane	P065	Phenol
P324	Dioxane	P065	Phenol
P325	Dioxane	P065	Phenol
P326	Dioxane	P065	Phenol
P327	Dioxane	P065	Phenol
P328	Dioxane	P065	Phenol
P329	Dioxane	P065	Phenol
P330	Dioxane	P065	Phenol
P331	Dioxane	P065	Phenol
P332	Dioxane	P065	Phenol
P333	Dioxane	P065	Phenol
P334	Dioxane	P065	Phenol
P335	Dioxane	P065	Phenol
P336	Dioxane	P065	Phenol
P337	Dioxane	P065	Phenol
P338	Dioxane	P065	Phenol
P339	Dioxane	P065	Phenol
P340	Dioxane	P065	Phenol
P341	Dioxane	P065	Phenol
P342	Dioxane	P065	Phenol
P343	Dioxane	P065	Phenol
P344	Dioxane	P065	Phenol
P345	Dioxane	P065	Phenol
P346	Dioxane	P065	Phenol
P347	Dioxane	P065	Phenol
P348	Dioxane	P065	Phenol
P349	Dioxane	P065	Phenol
P350	Dioxane	P065	Phenol
P351	Dioxane	P065	Phenol
P352	Dioxane	P065	Phenol
P353	Dioxane	P065	Phenol
P354	Dioxane	P065	Phenol
P355	Dioxane	P065	Phenol
P356	Dioxane	P065	Phenol
P357	Dioxane	P065	Phenol
P358	Dioxane	P065	Phenol
P359	Dioxane	P065	Phenol
P360	Dioxane	P065	Phenol
P361	Dioxane	P065	Phenol
P362	Dioxane	P065	Phenol
P363	Dioxane	P065	Phenol
P364	Dioxane	P065	Phenol
P365	Dioxane	P065	Phenol
P366	Dioxane	P065	Phenol
P367	Dioxane	P065	Phenol
P368	Dioxane	P065	Phenol
P369	Dioxane	P065	Phenol
P370	Dioxane	P065	Phenol
P371	Dioxane	P065	Phenol
P372			

Hazardous Waste No	Substance
U060	Benzene, 1,3-methylenedioxy-4-propyl-
U066	Benzene, (1-methylethyl)- (R)
U169	Benzene, nite- (R,T)
U163	Benzene, pentachloro-
U165	Benzene, pentachloro-nitro-
U020	Benzotrifluoride and chloride (C,R)
U027	Benzotrifluoride chloride (C,R)
U037	Benzene, 1,2,4,5-tetrachloro-
U023	Benzene, (methylenedioxy)-(C,R,T)
U034	Benzene, 1,2,5-trichloro- (R,T)
U021	Benzene
U022	1,2-Benzenedithiol-3-one, 1,1-dithio-
U120	Benz(a)fluorene
U022	Benz(a)pyrene
U022	2,4-Benzopyrene
U107	p-Benzodiphenyl
U023	Benzofuran (C,R,T)
U060	1,2-Benzophenanthrene
U066	2,7-Benzene (R,T)
U021	(1,1'-Biphenyl)-4,4'-diamine
U073	(1,1'-Biphenyl)-4,4'-diamine, 2,2'-diamino-
U021	(1,1'-Biphenyl)-4,4'-diamine, 2,2'-dimethoxy-
U066	(1,1'-Biphenyl)-4,4'-diamine, 2,2'-dimethoxy-
U024	Bis(2-chloroethyl) methane
U027	Bis(2-chloroethyl) ether
U044	Bis(methoxyphenyl)methyl chloride
U026	Bis(2-ethylthio) methane
U046	Bromine cyanide
U025	Bromine
U020	4-Bromophenyl phenyl ether
U126	1,2-Dibenzene, 1,2,3,4,4-tetrachloro-
U172	1-Dibenzene, N-butyl-N-oxo-
U026	Dibenzene and, 4-(Bis(2-chloroethyl)amino)-
U021	1-Dibenzene (R)
U169	2-Dibenzene (R,T)
U169	2-Dibenzene pentachloro (R,T)
U023	3-Dibenzene
U074	3-Dibenzene, 1,4-dichloro- (R,T)
U021	4-Dibenzene (R)
U126	Dibenzene and
U026	Dibenzene and, ethyl ester
U176	Dibenzene and, methylthio-, ethyl ester
U176	Dibenzene, N-methyl-N-oxo-
U177	Dibenzene, N-methyl-N-oxo-
U019	Dibenzene, tri-
U027	Dibenzoyl chloride, dimethyl-
U016	Dibenzoyl chloride, dimethyl- (R,T)
U166	Dibenzotrifluoride and, methyl ester (R,T)
U023	Dibenzotrifluoride (R,T)
U111	Dibenzotrifluoride
U023	Dibenzoyl fluoride (R,T)
U024	Dibenzyl
U026	Dibenzyl
U026	Dibenzene, brominated
U026	Dibenzophenone
U027	Dibenzophenone
U026	4-Dibenzene-m-oxo-
U041	1-Dibenzene-2,2-dichloropropane
U042	2-Dibenzoyl vinyl ether
U044	Dibenzyl
U049	Dibenzoyl methyl ether
U047	Bis-Chlorophenylmethane
U049	4-Chloro-2-nitro-, hydrochloride
U022	Chloride and, sodium salt
U022	Chloride
U021	Chloride
U022	Chloride
U022	Chloride and
U022	Chlorophenyl

Hazardous Waste No	Substance
U066	Cumene (R)
U046	Cyanogen bromide
U167	1,4-Cyclohexanedione
U066	Cyclohexane (R)
U067	Cyclohexane (R)
U130	1,5-Cyclohexadiene, 1,2,3,4,5,6-hexa- stereo-
U066	Cyclohexanone
U040	2,4-D, salts and esters
U069	Dacrylon
U060	DDO
U061	DDT
U142	Decachlorocyclopentene-1,2,3,4-methano-2H-
	cyclopentene-1,2,3,4-methano-2H-
U062	Decalin
U123	Decalin (R,T)
U021	Decalinene
U062	Decalinene, 1,2,3,4,5,6-hexa-
U062	1,2,3,4,5,6-Hexachlorocyclopentene
U064	1,2,3,4,5,6-Hexachlorocyclopentene
U064	Decalinene, 1,2,3,4,5,6-hexa-
U066	1,5-Dichloro-2-chloropropane
U069	Diallyl phosphate
U062	2,2,3,3-Tetrachloro-1,1-dimethyl-2-propyne
U070	2-Chlorobenzene
U071	m-Chlorobenzene
U072	p-Chlorobenzene
U073	2,3-Dichlorobenzene
U074	1,4-Dichloro-2-butene (R,T)
U075	Dichlorodifluoromethane
U162	2,2-Dichloro-N(1,1-dimethyl-2-propynyl)-
	carbazole
U060	Dichloro diphenyl dichloromethane
U061	Dichloro diphenyl dichloromethane
U070	1,1-Dichloroethylene
U073	1,2-Dichloroethylene
U062	Dichloroethyl ether
U061	2,4-Dichlorophenol
U062	2,5-Dichlorophenol
U040	2,4-Dichlorophenylphosphate and, salts and
	esters
U062	1,2-Dichloropropane
U064	1,3-Dichloropropane
U066	1,2,3,4-Dichlorobutene (R,T)
U108	1,4-Dichloro diacid
U066	N,N-Dichloroethane
U067	2,2-Dichloro-5-methyl-2-thiophosphine
U066	Dichloro phosphate
U069	Dichlorosulfide
U146	1,5-Dichloro-2,5-pyridinedione
U060	Dichlorosulfone
U061	2,5-Dichlorosulfone
U062	Dichlorosulfone (R)
U069	Dichlorosulfone
U064	7,7-Dichloro-2,2,4,4-tetrahydro-1,2,3,4-tetra-
U066	2,2-Dichlorobenzene
U066	alpha,alpha-Dichlorobenzylhydrazine (R)
U067	Dichlorobenzoyl chloride
U069	1,1-Dichloroethylene
U069	1,2-Dichloroethylene
U101	2,4-Dichlorophenol
U102	Dichloro phosphate
U103	Dichloro sulfide
U102	2,4-Dichlorosulfone
U102	2,5-Dichlorosulfone
U107	2,4-Dichloro phosphate
U108	1,4-Dichloro
U110	1,2-Dichloroethylene
U110	Dichlorosulfone (R)
U111	Dichlorosulfone
U061	Dibenzyl (R)
U174	Dibenzene, N-methyl-N-oxo-
U067	Dibenzene, 1,2-dichloro-

[illegible]

Hazardous Waste No.	Substance	Hazardous Waste No.	Substance
U028	2-Naphthylamine, N,N-bis(2-chloromethyl)-	U191	Pyridine, 2-methyl-
U169	Nitrobenzene (L,T)	U194	4(1H)-Pyrimidinone, 2,5-dihydro-6-methyl-2-
U170	p-Nitrophenol		
U171	2-Nitropropane (L,T)	U199	Pyrimin, tetrahydro-N-nitroso-
U172	N-Nitroso-N-butylamine	U200	Resorcinol
U173	N-Nitroso-N-methylamine	U201	Resorcinol
U174	N-Nitroso-N-propylamine	U202	Saccharin and salts
U175	N-Nitroso-N-ethylamine	U203	Selenic acid
U176	N-Nitroso-N-methylurea	U204	Selenous acid
U177	N-Nitroso-N-methylurethane	U205	Selenous dioxide (R,T)
U178	N-Nitrosopyrrolidine	U015	L-Serine, dextroisomer (color)
U180	5-Nitro-2-thiophene	See P027	Silver
U181	5-Nitro-2-thiophene	U029	4,4'-Dibromodiphenyl ether, alpha,alpha'-diethyl-
U182	1,2-Oxathiane, 2,5-dithiane	U030	Squalene
U029	2,2,3,3-Tetrachloro-1,4-dioxane, 2-(bis(2-chloro-ethyl)amino)ethoxy-, acid 2-	U138	Sulfur hydride
U118	Quinone (L,T)	U103	Sulfuric acid, dimethyl ester
U041	Quinone, 2-chloromethyl-	U189	Sulfur phosphide (R)
U182	Quinone	U026	Sulfur sesquioxide (R,T)
U183	Quinone, 2-chloromethyl-	See P027	2,4,5-T
U184	Quinone, 2-chloromethyl-	U027	1,2,4,5-Tetrachlorobenzene
U185	Quinone, 2-chloromethyl-	U028	1,1,1,2-Tetrachloroethane
U186	Quinone, 2-chloromethyl-	U029	1,1,2,3-Tetrachloroethane
See P027	Quinone, 2-chloromethyl-	U210	Tetrachloroethylene
U188	1,3-Pentadecane (R)	See P027	2,3,4,5-Tetrachlorophenol
U187	Phenanthrene	U213	Tetrahydrofuran (R)
U188	Phenol	U214	Thallium(I) acetate
U046	Phenol, 2-chloro-	U215	Thallium(I) carbonate
U029	Phenol, 4-chloro-3-methyl-	U216	Thallium(I) chloride
U031	Phenol, 2,4-dichloro-	U217	Thallium(I) nitrate
U032	Phenol, 2,6-dichloro-	U218	Thallium(I) nitrate
U191	Phenol, 2,4-dimethyl-	U189	Thiobenzamide
U170	Phenol, 4-nitro-	U219	Thiobenzamide (L,T)
See P027	Phenol, para-chloro-	U244	Thiuron
Do	Phenol, 2,3,4,5-tetrachloro-	U220	Thiuron
Do	Phenol, 2,4,5-trichloro-	U221	Thiuron
Do	Phenol, 2,4,6-trichloro-	U222	Thiuron dithiuron (R,T)
U137	1,10-(1,2-phenylene)pyrene	U223	o-Toluidine
U145	Phosphoric acid, Lead salt	U224	o-Toluidine hydrochloride
U027	Phosphoric acid, 2,6-diethyl-, 3-methyl-	U225	p-Toluidine
		U226	1,4-1,2,4-Triazole-5-amine
U189	Phosphoric acid (R)	U227	1,1,1-Triazoles
U190	Phthalic anhydride	U228	1,1,2-Triazoles
U191	Phthalic anhydride	U229	Triazoles
U192	Phthalic anhydride	U230	Triazoles
U193	Phthalic anhydride	U231	Triazoles
U194	Phthalic anhydride	See P027	2,4,5-Triazoles
U110	1-Propanol, N-propyl- (R)	Do	2,4,5-Triazoles
U036	Propanol, 1,3-dichloro-5-chloro-	Do	2,4,5-Triazoles
U145	Propanol	U234	syn-Triazoles (R,T)
U171	Propanol, 2-nitro- (L,T)	U182	1,3,5-Triazole, 2,4,5-trimethyl-
U027	Propanol, 2,2-bis(2-chloro-ethyl)-	U235	Tri(2,3-dichloropropyl) phosphate
U183	1,3-Propanediol	U236	Thylen blue
U235	1-Propanol, 2,3-dichloro-, phosphate (2:1)	U237	Urea, N,N-bis(2-chloromethyl)-
U128	1-Propanol, 2,3-dimethyl- (L,T)	U237	Urea, N,N-bis(2-chloromethyl)-
U140	1-Propanol, 2-methyl- (L,T)	U043	Vinyl chloride
U002	2-Propanol (R)	U046	Various, when present at concentrations of 0.5% or less
U007	2-Propanol	U239	Xylene (R)
U044	Propanol, 1,3-dichloro-	U200	Yenban-10-carboxylic acid, 11,17-dimethyl-18-(2,4,5-trimethyl-2-oxo-2-phenyl)-
U243	1-Propanol, 1,1,2,2,3,3-hexamethyl-		
U009	3-Propanol		
U182	3-Propanol, 2-methyl- (L,T)		
U008	3-Propanol and (R)		
U113	3-Propanol and, ethyl ester (R)		
U110	3-Propanol and, 2-methyl-, ethyl ester		
U182	3-Propanol and, 2-methyl-, methyl ester (L,T)		
See P027	Propanol and, 2-(2,4,5-trichlorophenyl)-		
U184	Propylene carbonate		
U029	Propylene carbonate		
U185	Pyridine		
U186	Pyridine, 2-(2,4,5-trichlorophenyl)-		
U179	Pyridine, tetrahydro-N-nitroso-		

(Approved by the Office of Management and Budget under control number 2050-0047)

[45 FR 78529, 78541, Nov. 25, 1980, as amended at 45 FR 27477, May 20, 1981; 49

Appendix II

Subpart C—Characteristics of Hazardous Waste

§ 261.20 General.

(a) A solid waste, as defined in § 261.2, which is not excluded from regulation as a hazardous waste under § 261.4(b), is a hazardous waste if it exhibits any of the characteristics identified in this subpart.

[Comment: § 262.11 of this chapter sets forth the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in this subpart.]

(b) A hazardous waste which is identified by a characteristic in this subpart, but is not listed as a hazardous waste in Subpart D, is assigned the EPA Hazardous Waste Number set forth in the respective characteristic in this subpart. This number must be used in complying with the notification requirements of section 3010 of the Act and certain recordkeeping and reporting requirements under Parts 262 through 265 and Part 270 of this chapter.

(c) For purposes of this subpart, the Administrator will consider a sample obtained using any of the applicable sampling methods specified in Appendix I to be a representative sample within the meaning of Part 260 of this chapter.

[Comment: Since the Appendix I sampling methods are not being formally adopted by the Administrator, a person who desires to employ an alternative sampling method is not required to demonstrate the equivalency of his method under the procedures set forth in §§ 260.20 and 260.21.]

(45 FR 33119, May 19, 1980, as amended at 45 FR 14394, Apr. 1, 1983)

§ 261.21 Characteristic of ignitability.

(a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-53-79 or D-53-80 (incorporated by reference, see § 260.11), or a Setflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78 (incorporated by reference, see § 260.11), or as determined by an equivalent test method approved by the Administrator under procedures set forth in §§ 260.20 and 260.21.

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under §§ 260.20 and 260.21.

(4) It is an oxidizer as defined in 49 CFR 173.151.

(b) A solid waste that exhibits the characteristic of ignitability, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number of D001.

(45 FR 33119, May 19, 1980, as amended at 45 FR 38347, July 7, 1981)

§ 261.22 Characteristic of corrosivity.

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either an EPA test method or an equivalent test method approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21. The EPA test method for pH is specified as Method 5.2 in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see § 260.11).

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see § 260.11) or an equivalent test method approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21.

(b) A solid waste that exhibits the characteristic of corrosivity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number of D002.

(45 FR 33119, May 19, 1980, as amended at 45 FR 38347, July 7, 1981)

§ 261.23 Characteristic of reactivity.

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

(1) It is normally unstable and readily undergoes violent change without detonating.

(2) It reacts violently with water.

(3) It forms potentially explosive mixtures with water.

(4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

(7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

(8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.58.

(b) A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number of D003.

§ 261.24 Characteristic of EP toxicity.

(a) A solid waste exhibits the characteristic of EP toxicity if, using the test methods described in Appendix II or equivalent methods approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21, the extract from a representative sample of the waste contains any of the contaminants listed in Table I at a concentration equal to or greater than the respective value given in that Table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering, is considered to be the extract for the purposes of this section.

(b) A solid waste that exhibits the characteristic of EP toxicity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number specified in Table I which corresponds to the toxic contaminant causing it to be hazardous.

TABLE I—MAXIMUM CONCENTRATION OF CONTAMINANTS FOR CHARACTERISTIC OF EP TOXICITY

EPA hazardous waste number	Contaminant	Maximum concentration (milligrams per liter)
D004	Arsenic	5.0
D005	Barium	100.0
D006	Cadmium	1.0
D007	Chromium	5.0
D008	Lead	5.0
D009	Mercury	0.2
D010	Selenium	1.0
D011	Silver	5.0

APPENDIX I—REPRESENTATIVE SAMPLING METHODS

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed below, for sampling waste with properties similar to the indicated materials, will be considered by the Agency to be representative of the waste.

Extremely viscous liquid—ASTM Standard D140-70 Crushed or powdered material—ASTM Standard D344-75 Soil or rock-like material—ASTM Standard D420-69 Soil-like material—ASTM Standard D1483-68 Fly Ash-like material—ASTM Standard D2254-76 (ASTM Standards are available from ASTM, 1916 Race St., Philadelphia, PA 19103)

Containerized liquid wastes—"COLIWARA" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," U.S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460. (Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 36 W. St. Clair St., Cincinnati, Ohio 45261)

Liquid waste in pits, ponds, lagoons, and similar reservoirs—"Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods."

This manual also contains additional information on application of these protocols.

APPENDIX II-EP TOXICITY TEST PROCEDURES

A. Extraction Procedure (EP)

1. A representative sample of the waste to be tested (minimum size 100 grams) shall be obtained using the methods specified in Appendix I or any other method capable of yielding a representative sample within the meaning of Part 260. [For detailed guidance on conducting the various aspects of the EP see "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see § 260.111.)]

2. The sample shall be separated into its component liquid and solid phases using the method described in "Separation Procedure" below. If the solid residue obtained using this method totals less than 0.5% of the original weight of the waste, the residue can be discarded and the operator shall treat the liquid phase as the extract and proceed immediately to Step 3.

3. The solid material obtained from the Separation Procedure shall be evaluated for its particle size. If the solid material has a surface area per gram of material equal to, or greater than, 2.1 cm² or passes through a 9.5 mm (0.375 inch) standard sieve, the operator shall proceed to Step 4. If the surface area is smaller or the particle size larger than specified above, the solid material shall be prepared for extraction by crushing, cutting or grinding the material so that it passes through a 9.5 mm (0.375 inch) sieve or, if the material is in a single piece, by subjecting the material to the "Structural Integrity Procedure" described below.

4. The solid material obtained in Step 3 shall be weighed and placed in an extractor with 16 times its weight of deionized water. Do not allow the material to dry prior to weighing. For purposes of this test, an acceptable extractor is one which will impart sufficient agitation to the mixture to not only prevent stratification of the sample and extraction fluid but also insure that all sample surfaces are continuously brought into contact with well mixed extraction fluid.

5. After the solid material and deionized water are placed in the extractor, the operator shall begin agitation and measure the pH of the solution in the extractor. If the pH is greater than 8.0, the pH of the solution shall be decreased to 8.0 ± 0.2 by adding 0.5 N acetic acid. If the pH is equal to or less than 8.0, no acetic acid should be added. The pH of the solution shall be monitored, as described below, during the course

of the extraction and if the pH rises above 8.2, 0.5N acetic acid shall be added to bring the pH down to 8.0 ± 0.2. However, in no event shall the aggregate amount of acid added to the solution exceed 4 ml of acid per gram of solid. The mixture shall be agitated for 24 hours and maintained at 20°-40°C (68°-104°F) during this time. It is recommended that the operator monitor and adjust the pH during the course of the extraction with a device such as the Type 45-A pH Controller manufactured by Chemtrix, Inc., Hillsboro, Oregon 97123 or its equivalent, in conjunction with a metering pump and reservoir of 0.5N acetic acid. If such a system is not available, the following manual procedure shall be employed:

(a) A pH meter shall be calibrated in accordance with the manufacturer's specifications.

(b) The pH of the solution shall be checked and, if necessary, 0.5N acetic acid shall be manually added to the extractor until the pH reaches 8.0 ± 0.2. The pH of the solution shall be adjusted at 15, 30 and 60 minute intervals, moving to the next longer interval if the pH does not have to be adjusted more than 0.5N pH units.

(c) The adjustment procedure shall be continued for at least 6 hours.

(d) If at the end of the 24-hour extraction period, the pH of the solution is not below 8.2 and the maximum amount of acid (4 ml per gram of solids) has not been added, the pH shall be adjusted to 8.0 ± 0.2 and the extraction continued for an additional four hours, during which the pH shall be adjusted at one hour intervals.

6. At the end of the 24 hour extraction period, deionized water shall be added to the extractor in an amount determined by the following equation:

$$V = (20 \times W) - 16(A) - A$$

V = ml deionized water to be added

W = weight in grams of solid charged to extractor

A = ml of 0.5N acetic acid added during extraction

7. The material in the extractor shall be separated into its component liquid and solid phases as described under "Separation Procedure."

8. The liquids resulting from Steps 3 and 7 shall be combined. This combined liquid (or the waste itself if it has less than 4 percent solids, as noted in Step 2) is the extract and shall be analyzed for the presence of any of the contaminants specified in Table 1 of § 261.24 using the Analytical Procedures designated below.

Separation Procedure

Equipment: A filter holder, designed for filtration media having a nominal pore size of 0.45 micrometers and capable of applying a 8.3 kg/cm² (75 psi) hydrostatic pressure to the solution being filtered, shall be used. For mixtures containing nonabsorptive solids, where separation can be effected without imposing a 8.3 kg/cm² pressure differential, vacuum filters employing a 0.45 micrometers filter media can be used. (For

Hazardous Waste Streams." EPA 600/3-90-012, January 1990.

*The percent solids is determined by drying the filter pad at 80°C until it reaches constant weight and then calculating the percent solids using the following equation:

Percent solids =

$$\frac{(\text{weight of pad} + \text{solid}) - (\text{dry weight of pad})}{\text{total weight of sample}} \times 100$$

further guidance on filtration equipment or procedures see "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" incorporated by reference, see § 260.11). Procedure:

(i) Following manufacturer's directions, the filter unit shall be assembled with a filter bed consisting of a 0.45 micrometer filter membrane. For difficult or slow to filter mixtures a prefiter bed consisting of the following prefilters in increasing pore size (0.55 micrometer membrane, fine glass fiber prefiter, and coarse glass fiber prefiter) can be used.

(ii) The waste shall be poured into the filtration unit.

(iii) The reservoir shall be slowly pressurized until liquid begins to flow from the filtrate outlet at which point the pressure in the filter shall be immediately lowered to 10-15 psig. Filtration shall be continued until liquid flow ceases.

(iv) The pressure shall be increased stepwise in 10 psi increments to 75 psig and filtration continued until flow ceases or the pressurizing gas begins to exit from the filtrate outlet.

(v) The filter unit shall be depressurized, the solid material removed and weighed and then transferred to the extraction apparatus, or, in the case of final filtration prior to analysis, discarded. Do not allow the materi-

*This procedure is intended to result in separation of the "free" liquid portion of the waste from any solid matter having a particle size $>0.45 \mu\text{m}$. If the sample will not filter, various other separation techniques can be used to aid in the filtration. As described above, pressure filtration is employed to speed up the filtration process. This does not alter the nature of the separation. If liquid does not separate during filtration, the waste can be centrifuged. If separation occurs during centrifugation, the liquid portion (centrifugate) is filtered through the 0.45 μm filter prior to becoming mixed with the liquid portion of the waste obtained from the initial filtration. Any material that will not pass through the filter after centrifugation is considered a solid and is extracted.

al retained on the filter pad to dry prior to weighing.

(vi) The liquid phase shall be stored at 4°C for subsequent use in Step 5.

B. Structural Integrity Procedure

Equipment: A Structural Integrity Tester having a 3.18 cm (1.25 in.) diameter hammer weighing 0.33 kg (0.73 lbs.) and having a free fall of 18.34 cm (6 in.) shall be used. This device is available from Associated Design and Manufacturing Company, Alexandria, VA 22314, as Part No. 125, or it may be fabricated to meet the specifications shown in Figure 1.

Procedure

1. The sample holder shall be filled with the material to be tested. If the sample of waste is a large monolithic block, a portion shall be cut from the block having the dimensions of a 3.3 cm (1.3 in.) diameter \times 7.1 cm (2.8 in.) cylinder. For a fixated waste, samples may be cast in the form of a 3.3 cm (1.3 in.) diameter \times 7.1 cm (2.8 in.) cylinder for purposes of conducting this test. In such cases, the waste may be allowed to cure for 30 days prior to further testing.

2. The sample holder shall be placed into the Structural Integrity Tester, then the hammer shall be raised to its maximum height and dropped. This shall be repeated fifteen times.

3. The material shall be removed from the sample holder, weighed, and transferred to the extraction apparatus for extraction.

Analytical Procedures for Analyzing Extract Contaminants

The test methods for analyzing the extract are as follows:

1. For arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, cadmium, lindane, methoxychlor, toxaphene, 2,4-D (2,4-dichlorophenoxyacetic acid) or 2,4,5-TP (2,4,5-trichlorophenoxypropionic acid): "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see § 260.11).

2. (Reserved)

For all analytes, the methods of standard addition shall be used for quantification of species concentration.